

Title: ISOLATED HUMAN KINASE PROTEINS...

1 TCGCGGCCCA GGTGGTGCAG GCGGCCCTAG CCCGGCTGCG GAGCGCTGCG
 51 CGAGCGCGG GCTGGCTGAC CCCGAGGGAC CCCCAGCGA GCGGGTGCAG
 101 CGATGATCCT GGAGGAGAGG CCGGACGGCG CGGGCGCCGG CGAGGAGAGC
 151 CCGCGCTGC AGATATCTAG GAGAAAACCC AGGAAAACAC GTGTGAGCTC
 201 TTTACGGGAA AGACGGGAAG GCCTGAGAGA CGTGTGTGCG TGGAGAGGGT
 251 GTCGGTCCA CAGAGGGAA GACCCAGTGC GTGTGCACGT TGGCCCCATG
 301 AATCCGCAGC TTCATGCAGT GGGCTGTGAC TCCCTGACGC AGATCCAGTG
 351 CGGCCAGCTG CAGAGCGCA GGGCCAGAT TCACCAGCAG ATTGACAAGG
 401 AGCTGCAGAT GCGGACGGGC GCTGAGAAC TCTACAGAGC CACCAGCAAC
 451 AACCGGGTGA GAGAGACGGT CGCCCTGGAG CTGAGCTACG TCAACTCAA
 501 CCTGCAGCTG CTGAAGGAGG AGCTGGAGGA GCTCAGCGGT GGCAGTGGACC
 551 CTGGCCGGCA TGGGAGCGAA GCTGTCACTG TCCCCATGAT CCCCCTGGC
 601 CTGAAGGAGA CCAAGGAGCT GGACTGGTCT ACACCGCTGA AGGAGCTGAT
 651 CTCAGTGCAC TTTGGAGAGG ACGGCGCCTC CTACAGGCA GAAATCAGGG
 701 AGCTGGAGGC CCTGCAGCGAG GCCATGCGGA CCCCCAGCCG GAATGAGTCG
 751 GGCCTGGAGC TGCTCACAGC CTATTACAAC CAGCTGTGCT TCCTGGATGC
 801 GCGCTTCCTC ACCCCCTGCCA GGAGCCTCGG GCTCTTCTTC CACTGGTACG
 851 ACTCGCTTAC TGGGGTCCCG GCGCAGCAGC GTGCCCTGGC TTTCGAGAAG
 901 GGCAGCGTTC TCTTCAACAT CGGTGCCCTC CACACGCAGA TTGGGGCGCG
 951 CCAGGACCGC TCCTGCACCG AGGGTGCCTCG CCGCGCTATG GAGGCCTTCC
 1001 AGAGGGCCGC TGGGGCCTTC AGCCTCTGA GGGAGAACTT CTCCCATGCG
 1051 CCGAGCCCAG ACATGAGCGC TGCGTCCCTC TGCGCACTGG AGCAGCTCAT
 1101 GATGGCCAG GCCCAGGAAT GTGTGTTTGA GGGCCTCTCA CCACCTGCCT
 1151 CCATGGCCCC CCAAGACTGC CTGGCCCGAGC TGCGCCTGGC GCAGGAGGCC
 1201 GCCCAGGTGG CAGCGAGTA CAGGCTAGTG CACCGGACCA TGGCCAGCC
 1251 ACCCGTCCAC GACTACGTGC CTGCTCCTG GACTGCCCTG GTGCATGTCA
 1301 AGGCCAGTA CTTCCGCTCC CTGGCCCACT ACCACGTAGC CATGGCCCTC
 1351 TGCAGCGCT CCCCAGCGAC CGAGGGAGAG CTCCCCACGC ACGAGCAGGT
 1401 CTTCTGCAG CCCCCCACCT CCTCTAACGCC CCGAGGCCCT GTGCTGCCGC
 1451 AGGAGCTGGA GGAGCGCAGG CAGCTTGGCA AGGCACACCT GAAGCGTGCC
 1501 ATCCTGGGC AGGAGGAGGC GCTGCGCTG CACGCCCTGT GCGCGTCCCT
 1551 GCGCGAGGTG GACCTGCTTC GGGCTGTGAT CTCCCAAGACG CTGCAGCGCT
 1601 CACTGGCAA GTATGCGGAG CTCGACCGTG AGGATGACTT CTGTGAGGCT
 1651 GCCGAGGCC CGGACATCCA GCCTAACGACC CACCAAGAC CAGAGGCCAG
 1701 GATGCCACGC CTGTCCCAGG GGAAGGGGCC TGACATCTTC CATGGCTGG
 1751 GGCCTCTGTC TGTGTTCTCA GCCAAGAAC GGTGGCGGCT GGTGGGGCCC
 1801 GTCCACCTGA CCCGAGGAGA GGGCGGCTTT GGCCCTCACGC TTCGGGGAGA
 1851 CTCGCTGTC CTCATCGCTG CCGTCATTCC AGGGAGGCCAG GCCGCGGCCG
 1901 CTGGGCTGAA GGAGGGCGAC TACATTGTGT CAGTGAATGG GCAGCCATGC
 1951 AGGTGGTGA GACACGCGGA GGTGGTGACG GAGCTGAAGG CTGCGGGAGA
 2001 GGCAGGGCGCC AGCCTGCGAGG TGGTGTGCT GCTGCCCAAGC TCTAGACTGC
 2051 CCAGCTTGGG GGACCGCCGG CCCGTCCTGC TGGGCCCCAG GGGGCTTCTA
 2101 AGGAGCCAGA GGGAGCATGG TTGCAAGACC CCGGCATCCA CGTGGGCCAG
 2151 TCCCCGGCCC CTCCCTCAACT GGAGCCAAA GGGCCAGCAG GGCAAGACTG
 2201 GAGGCTGCC CCAAGCCCTGT GCCCCAGTGA AGCCAGCTCC GCCCTCATCC
 2251 TTGAAGCACC CAGGGTGGCC GTGAGGGCCA GGATCCCTGC ACGCCCTCAG
 2301 CCCTGGCTCC AGCTGGCAGC AAGCACCGAG CATGCCCTCC CCACCCAGAG
 2351 GACCTCCGGG CAATGCCTGT CCCGCCTCAT GCTGGAGGCT GCCTCGGGCA
 2401 CCTGCCTGCC CATTAAAGAC TGGTCAGACC TGTCTGAAAA AAAAAAAAAA
 2451 AAAAAAAAAA AAAAAAAAAA (SEQ ID NO:1)

FEATURES:

5'UTR: 1-102

Start Codon: 103

Stop Codon: 2272

3'UTR: 2275

FIGURE 1A

Docket No.: CL001099 CIP DIV2
Serial No.: To be assigned
Inventors: Douglas RUSCH et al.
Title: ISOLATED HUMAN KINASE PROTEINS...

Homologous proteins:

Top 10 BLAST Hits

		Score	E
CRA 18000005019652	/dataset=nraa /length=643 /altid=gi 6680085 ...	930	0.0
CRA 18000005229461	/dataset=nraa /length=718 /altid=gi 4868350 ...	393	e-108
CRA 89000000195700	/dataset=nraa /length=648 /altid=gi 7293132 ...	309	7e-83
CRA 163000000492107	/dataset=nraa /length=1345 /altid=gi 795920...	116	7e-25
CRA 18000005101898	/dataset=nraa /length=775 /altid=gi 7492978 ...	112	2e-23
CRA 18000005055009	/dataset=nraa /length=861 /altid=gi 3785952 ...	105	2e-21
CRA 18000004878869	/dataset=nraa /length=882 /altid=gi 466013 /...	105	2e-21
CRA 18000005242118	/dataset=nraa /length=816 /altid=gi 5103812 ...	104	3e-21
CRA 1000682341924	/dataset=nraa /length=868 /altid=gi 7019487 /...	99	2e-19
CRA 18000005212030	/dataset=nraa /length=867 /altid=gi 4416376 ...	98	4e-19

BLAST dbEST hits:

gi 9121454 /dataset=dbest /taxon=9606...	1207	0.0
gi 9344702 /dataset=dbest /taxon=960...	922	0.0
gi 6702051 /dataset=dbest /taxon=9606 ...	676	0.0
gi 12066980 /dataset=dbest /taxon=96...	672	0.0
gi 9098957 /dataset=dbest /taxon=9606...	672	0.0
gi 9202467 /dataset=dbest /taxon=9606...	650	0.0
gi 8008394 /dataset=dbest /taxon=960...	628	e-177
gi 11295927 /dataset=dbest /taxon=96...	599	e-168
gi 4649738 /dataset=dbest /taxon=9606 ...	595	e-167

EXPRESSION INFORMATION FOR MODULATORY USE:

library source:

Expression information from BLAST dbEST hits:

gi 9121454	Eye retinoblastoma
gi 9344702	Placenta choriocarcinoma
gi 6702051	Germ cells
gi 12066980	bocio_tumor
gi 9098957	Pediatric pre-B cell acute lymphoblastic leukemia
gi 9202467	Kidney 2 pooled Wilm's tumors
gi 8008394	Uterus tumor
gi 11295927	Brain anaplastic oligodendroma
gi 4649738	Uterus well-differentiated endometrial adenocarcinoma

Expression information from PCR-based tissue screening panels:

Human leukocyte

FIGURE 1B

Title: ISOLATED HUMAN KINASE PROTEINS...

1 MILEERPDGA GAGEESPRLQ ISRRKPRKTR VSSLRGRREG LRDVCARWRC
 51 RVHRGEDPVR VHVGPMNPQL HAVGCDLTL IQCGQLQSRR AQIHQQIDKE
 101 LQMRTGAENL YRATSNNRVR ETVALELSYV NSNLQLLKEE LEELSGGVDP
 151 GRHGSEAVTV PMIPLGLKET KELDWSTPLK ELISVHFGED GASYEAEIRE
 201 LEALRQAMRT PSRNESGLEL LTAYYNQLCF LDARFLTPAR SLGLFFHWYD
 251 SLTGVPAQQR ALAFEKGSVL FNIGALHTQI GARQDRSCTE GARRAMEAFQ
 301 RAAGAFSLLR ENFSHAPSPD MSAASLCALE QLMMAQAQEC VFEGLSPPAS
 351 MAPQDCLAQL RLAQEAAQVA AEYRLVHRTM AQPVHDYVP VSWTALVHV
 401 AEYFRSLAHY HVAMALCDGS PATEGELPTH EQVFLQPPTS SKPRGPVLPQ
 451 ELEERRQLGK AHLKRAILGQ EEALRLHALC RVLREVDLLR AVISQTLQRS
 501 LAKYAELDRE DDFCEAAEAP DIQPKTHQKP EARMPLRSQG KGPDIFHRLG
 551 PLSVFSAKNR WRLVGPVHLT RGEGGFGLTL RGDSPVLIAA VIPGSQAAA
 601 GLKEGYIIVS VNGQPCRWR HAEVVTELKA AGEAGASLQV VSLLPSSRLP
 651 SLGDRRPVLL GPRGLLRSQR EHGCKTPAST WASPRPLLW SRKAQQGKTG
 701 GCPQPCAPVK PAPPSSLKHP GWP (SEQ ID NO:2)

FEATURES:**Functional domains and key regions:**

[1] PDOC00001 PS00001 ASN_GLYCOSYLATION
 N-glycosylation site

Number of matches: 3

1	214-217	NESG
2	312-315	NFSH
3	689-692	NWSR

[2] PDOC00005 PS00005 PKC_PHOSPHO_SITE
 Protein kinase C phosphorylation site

Number of matches: 12

1	16-18	SPR
2	683-685	SPR
3	22-24	SRR
4	88-90	SRR
5	33-35	SLR
6	22-24	SRR
7	88-90	SRR
8	440-442	SSK
9	556-558	SAK
10	579-581	TLR
11	646-648	SSR
12	668-670	SQR

[3] PDOC00006 PS00006 CK2_PHOSPHO_SITE
 Casein kinase II phosphorylation site

Number of matches: 8

1	105-108	TGAE
2	212-215	SRNE
3	216-219	SGLE
4	287-290	SCTE
5	423-426	TEGE
6	570-573	TRGE
7	651-654	SLGD
8	668-671	SQRE

[4] PDOC00007 PS00007 TYR_PHOSPHO_SITE
 Tyrosine kinase phosphorylation site

104-111 RTGAENLY

FIGURE 2A

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[5] PDOC00008 PS00008 MYRISTYL
N-myristylation site

Number of matches: 11

1	9-14	GAGAGE
2	84-89	GQLQSR
3	147-152	GVDPGR
4	166-171	GLKETK
5	274-279	GALHTQ
6	291-296	GARRAM
7	419-424	GSPATE
8	469-474	GQEEAL
9	594-599	GSQAAA
10	601-606	GLKEGD
11	664-669	GLLRSQ

[6] PDOC00009 PS00009 AMIDATION
Amidation site

35-38 RGRR

[7] PDOC00016 PS00016 RGD
Cell attachment sequence

581-583 RGD

Membrane spanning structure and domains:

Helix	Begin	End	Score	Certainty
1	583	603	1.094	Certain

BLAST Alignment to Top Hit:

```
>CRA|18000005019652 /dataset=nraa /length=643 /altid=gi|6680085
  /def=ref|NP_032190.1| GTP-rho binding protein 1 [Mus
  musculus] /org=Mus musculus /taxon=10090
  Length = 643
```

Score = 930 bits (2284), Expect = 0.0
Identities = 471/706 (66%), Positives = 520/706 (72%), Gaps = 72/706 (10%)

Query: 1 MILEERPDGAGAGEESPRLQISRRKPRKTRVSSLRGRREGLRDVCARWGRCRVHRGEDPVR 60

MILEERPDG G GEES R

Sbjct: 1 MILEERPDGQGTGEESSR----- 18

Query: 61 VHVGPMNPQLHAVGCDSLTIQCGQLQSRRAQIHQQIDKELQMRTGAENLYRATSNNVR 120
 P + G S Q Q GOLOS RA++HQI KEL+MRTGAENLYRATS N VR

Sbjct: 19 ----PQDDGSIRKGYGSFVQNQPGQLQSHRARLHQQISKELRMRTGAENLYRATSNTWVR 74

Query: 121 ETVALELSYVNSNLQLLKEEEELSGGVDPGRHGSEAVTVPMIPLGLKETKELDWSTPLK 180
 ETVALELSYVNSNLQLLK EEL ELS VD + E +T+PMIPLGLKETKELDW+TPLK

Sbjct: 75 ETVALELSYVNSNLQLLKEEEELSTSVDVDQPEGEGITIPMIPLGLKETKELDWATPLK 134

Query: 181 ELISVHFGEDGASYEAEIRELEALRQAMRTPSRNESGLELLTAYYNQLCFLDARFLTPAR 240
 ELIS HFGEDEG S+E EI+ELE LRQA RTPSR+E+GL+LL AYY+QLCFLDARF +P+R

Sbjct: 135 ELISEHFGEDEGTSFETEIQELEDLRQATRTPSRDEAGLDLLAAYYSQLCFLDARFFSPSR 194

Query: 241 SLGLFFFHWYDSLTLGVPAQQRALAFEKGSVLFNIGALHTQIGARQDRSCTEGARRAMEAFQ 300
 S GL FHWYDSLTLGVPAQQRALAFEKGSVLFNIGALHTQIGARQD SCTEG A EAFQ

Sbjct: 195 SPGLLFFHWYDSLTLGVPAQQRALAFEKGSVLFNIGALHTQIGARQDCSCTEGTNHAAEAFQ 254

Query: 301 RAAGAFSLLRENFSHAPS PDMASAASLCALEQLMMAQAQECVFEGLSPPASMAPQDCLAQL 360
 RAAGAF LLRENFSHAPS PDMASAASL LEQLM+AQAQEC+F+GL PAS P C QL

FIGURE 2B

Docket No.: CL001099 CIP DIV2

Serial No.: To be assigned

Inventors: Douglas RUSCH et al.

Title: ISOLATED HUMAN KINASE PROTEINS...

Sbjct: 255 RAAGAFRLLRENFSHAPSPDMAASLSMLEQLMIAQAQECIFKGLLLPA
Sbjct: 315 QLAQEAAQVATEYGLVHRAMAQPPVRDYLPA
Sbjct: 375 PA-KGELARQEHVF-QPSTPHEPLGPTLPQHPEDRRKLAKAHLKRAILGQEEALRLHTLC 432

Query: 361 RLAQEAAQVAEYRLVHRTMAQPPVHDYVPVSWTALVHVKA
Sbjct: 315 QLAQEAAQVATEYGLVHRAMAQPPVRDYLPA
Sbjct: 375 PA-KGELARQEHVF-QPSTPHEPLGPTLPQHPEDRRKLAKAHLKRAILGQEEALRLHTLC 432

Query: 421 PATEGELPTHEQVFLQPPTSSKPRGPVLPQELEERRQLGKAHLKRAILGQEEALRLHALC 480
PA +GEL E VF QP T +P GP LPQ E+RR+L KAHLKRAILGQEEALRLH LC
Sbjct: 375 PA-KGELARQEHVF-QPSTPHEPLGPTLPQHPEDRRKLAKAHLKRAILGQEEALRLHTLC 432

Query: 481 RVLREVDLLRAVISQTLQRSLAKYAELDREDFCEAAEAPDIQPKTHQKPEARMPLSQG 540
RVLR+VDLL+ V++Q L+RSLAKY++L+REDDF EA EAPDIQPKTHQ PE
Sbjct: 433 RVLRKV DLLQVVVTQALRRSLAKYSQLE REDDFF EAT EAPDIQPKTHQ TPE----- 483

Query: 541 KGPDI FHRLGPLSVFSAKNRWRLVGPVHLTRGEGGFGLT
GPLSVFS KNRW+LVGPVH+TRGEGGFG TLRGDSPV LIAAV+PG QA +A
Sbjct: 484 -----GPLSVF STKNRWQLVGPVHMTRGE GGFGTLRGDSPV LIAAVVPGQAESA 534

Query: 601 GLKEGDYIVSVNGQPCRWWRAEVVTELKAAGEAGASLQVVSLLPSSRLPSLGDRRV
GLKEGDYIVSVNGQPC+WW+H EVVT+L++ GE G SLQVVSLLPS G RR LL
Sbjct: 535 GLKEGDYIVSVNGQPCWKHLEVVTQLRSMGEEGVSLQVVSLLPSPEPRGTGPRRAALL 594

Query: 661 GPRGLLRSQREHGCKTPASTWASPRPLLNSRKAQQGKTGGCPQPC 706
+QRE G +TP T P P+L WSRK +QGKTG P PC
Sbjct: 595 W-----NQRECGFETPMPTRTRPWI LGWSRKNQGKTGSHPDPC 634 (SEQ ID NO: 4)

Hmmer search results (Pfam):

Model	Description	Score	E-value	N
PF00595	PDZ domain (Also known as DHR or GLGF).	46.4	9e-12	1

Parsed for domains:

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
PF00595	1/1	566	644 ..	1	79 [.	46.4	9e-12

FIGURE 2C

Title: ISOLATED HUMAN KINASE PROTEINS...

1 CCACCCGTTC TCAAAAAAAA AAAAAAAGGC CAGTCACAGT GGCTCACACC
 51 TATAATCCC ACACTTGGG AGGCCAACGGC AGGCAGATCA CTGGAGCTCA
 101 GAAGTTCAAG ACCAGCCTGG GCAACACGGC GAAACCCCTGT CTCAATT
 151 TTTTCCTTTA TAAATTACAA AAGAGAAAAC GAGCATAAAG CAGCCCCATC
 201 AGCAATTATC ACCTCATCTG CAAAAGGTCC CGCGCCTCAC TGCCGTGCC
 251 CTCCCGCCGC TGTCCAGTTC CCTGCCTGTC ACACCAAAT TCTCCTCTAC
 301 TTTCTCACCT CCCATCCTT CATTTCCTCC CCTAAATT TAAACTTCAG
 351 AAGTGCACAA TACACATGTA ACAAAACCCAC ACATGTACCT CCAAATCTAA
 401 AATAATTAA AAAAACAAAA AGGAAACTCT AAATTTTTG AGTGCAGTGA
 451 TACATTCTTG CTGTGCCAAA TCCAGTAACA CAGAAGCATG CAAAGAAAAA
 501 GGCAGCACCA CCCCCCTCCA ACACACACAC ACACACACAC ACACGCACAC
 551 ACGCACATAT GCACGCACAC ACACGCACAC GCACACACGC ACACGCACAC
 601 ACTCCAGCCT GGGCGACAAG AGCAAGACTC CATCTCAATA AATAAATAAA
 651 GAAAATAGTA ATTGAATATT TTCCTTCAGG AAACAGCACC CTGCAGGGAG
 701 GGGGAAGTCTT ATGACCTCA AAGTTTGAGA GCCTCTCTTA ACTTCCCAAT
 751 GGCCCTGTC TGCTGAACCA AGAAGCCTGC AAAACAAATA CGTAAGAACT
 801 GGATACCATT TCAGTCACAC ATGCTTGCTG ACAGTCACTG ATATGGTAAT
 851 GCCTCCTGTA CACATAGCTG ACTCTGAAGA CTGCTAAGAG GTTTGGTC
 901 TCTGCTGTAC AGGACCTTG CAGCCTGCAA GGAGATGACT CACATGGAAG
 951 TCCCCACACA AGTGCACCCA GTGTGAACCT TGGAAGCATC GGCCCAGT
 1001 CAGGGCCACA GTTAAGATGG CCAGGAGCCC CTGCCCTTGA GGAAACTTGA
 1051 ACCACAGAGC TGCTGGCGAA GGGGGTGGGT GAAGGTCTCA TGTAGCCTGT
 1101 GTGATTCAAG CAGAAGTGAAG AAGGACGGGT GGGAAACCCAC CAAGTGGACG
 1151 ACAAGCTGAA GGGCTCCCAAG GGAGCAGACA CTTCAGGGC CCCAAAAGGC
 1201 CAGGAGAAAG AAAAAAAA GCGGGGTATG GTGGCTCATC CCTGTAATCC
 1251 AGCACTTTG GGAGGTTGAG GCAGATGAAT TGCTTGAGCC CAGAAGTTG
 1301 AGACCAGCCT GGGCCTGGGC AATGTGGCGA AACCTGTCT CTACAAAATA
 1351 TACAAAAATT AGCCGGGTGT GGTGGTGCAA GCCTGTAGTC CCAGCTATT
 1401 AGGAGGCTGA GGTGGGAGGA TCACATGAGC CCAGGAGGTG GAGGCTGCAG
 1451 TGAGCTGTGA TCGTACCACT GCACTCCGGC CTGGGAAACA GAGTGAGGCC
 1501 CTGCTCTAAA AGGCCAGGAG TGGAAAGACAG GCCCTAGCCA GGAGGTTCA
 1551 CGTGGCTGGC AGGGGCTTA TGAGAAGGCT GTTGCTGGGA GGGGCTGCT
 1601 GCAGATGGCT GCGGCAGACC ACGGAGCTTA GCCTTCAGGA TTTAGATCTG
 1651 GGGATGACAG GCTCCTGTGT GCTTGTGCG GAGCCGGGAG CACAGGCACC
 1701 AGAATGATCC CAGGGCTCAG CTCCAAGGCT CCGCTGGGCC TGTGGTGGG
 1751 CAGTGAACGT GGACAAGACC TGGGCTTCAG AGGAACCTGA TGACCAGGAG
 1801 CCGTGGTTAC CGCCTGTGCC CTGGCCTTCC TGCTCTCAA AGGGTGTGTT
 1851 CTGAGCTGAG GCGAGACCCA CACGAAATCC GAGCGGGCTC CGGAGTCACC
 1901 AGACACCTAG GGAAGTATGG AAGGCCCGGA AGGACACACA CAGCCGGGTG
 1951 AGCCCGCAG GGAGCTGTGC AGTCTCAGGT CGTCCAGTCC TGGGGCTGCA
 2001 GGCCAGTTCT CCAAGCAGGT GGTCTGGAG GCAAGCTGGT TTTGAAAGTA
 2051 GGTTCTGAAA ATAGGTCACT CCAGGAAACA AGCTCTGGAA GTAAAGAGAT
 2101 TCGGAAAGCA GTTCTGTTCT GGAAACAAGT TCTACAAACA GGTAGTTCTG
 2151 AAAGCACGTG GTTCCAGAG GCAGGTGCTA GAAGGATGTG GTTCTGTAC
 2201 GGAGGTTCTG GAGGGAGGCC GTTCTGGAC GGAGGTTCTG GAAGGAGGCC
 2251 GGTTCTGGAG GCGGGTTTG GAAGCAGGAC GACACCGACA GAGGCGCCTC
 2301 GGACTGGGGC CAGGCCCTGGA GCCTCCGCTC CGCGGGCAGA GAGAAGAAAG
 2351 CAGGCATTGT CGGAGGACTC ACACAAGCAC TTGTCCTAA CAAAACCGTT
 2401 TTTAAAAACC CCATTGTGAA CATTTCCTGGA ACAAGCCTCT TAGAGGGTCC
 2451 CGTTGCCGGG GTGACAGGAC GAAACGGCAG GAGCGGGCAG ACTCCTGGAG
 2501 TCCCCGCAA AAGGAGCCGAG GAGCTAGGCC CGCCGAGTCC AGGTCCGCC
 2551 TGAACCTCAG CTTGGGACGT TCCGTATAGT TTTTTCTCC GTTCCCAGA
 2601 CTTCTCCCGC ACGCTCAGCG GCCGCCCGG CGCATGCGCA GTACAACCTG
 2651 CCAGCCAGCC GCGGGCGTTC CGGCCCGGGT TGCCAGGGGT TACCGTCCC
 2701 CGGGCGGGCG GAGCTGGCCG TCCAGAGCCC GCCTCCCTGG AACTCTGGT
 2751 GGCTGATATA GCTGTCCGT GAAGCGGCAT TGCCGCCTAT TGGGCAATGG
 2801 CCAGCTTCGC ACGCCAGACC CGTGCCCCGC CCAGCCGCAGC CGCGGGCCGC
 2851 CCCCACTCAG GAGGGACAGT CGGGGACCGG CGCGGGCACT CAGGAGCCCG
 2901 CGGGCCAGGT GGTGCGGGCG GCCCTAGCCC GGCTGCGGAG CGCTGCGCGA
 2951 GCGGGGGCCT GGCTGACCCC GAGGGACCCC CAGCGCAGCG GGTGCGCGA
 3001 TGATCCTGGA GGAGAGGCCG GACGGCGCGG GCGCCGGCGA GGAGAGCCCG
 3051 CGGCTGCAGG TGCGCAGAAC TGGCGCGCG GCGGGAGGAG GGGCCCGGAA

FIGURE 3A

Title: ISOLATED HUMAN KINASE PROTEINS...

3101 TCCCCGCCCTT TTCCTGCCCC CCCTCGAGGC GCGTTCCGGG CGCCCCCCTC
 3151 CTACGTACTC ATTCGGCCCG GACGCAGGCA GGGAAACTGA GGCCAGAGCC
 3201 TGCCTGCCCT CTCCTCTGA GCTCGGTGGA GGTGCTTCCA GGCCACTCAT
 3251 GTGAGCCGGG AAATGCGGAC AGCCAAAGTC TGATCATCC TCACCGCTGA
 3301 AGCGGGTTGG GGGGACGCC CCCTCGTGC CCCCTTCTGG GCGGATGTGG
 3351 GGCTGGGATC TGTGAGCGCC CTCCCCACAC CCGCCATCGT GTTCCTTCC
 3401 GGCACCTGTA CAGCCTCCTT CCCTAGTTCG GTCCCTCCCTC TGCATCCGCT
 3451 CAGGAACACTGC ATGCCCATTG GGTGCACTGG TAGCAGCGGG CAGCGAAGCC
 3501 TCCTGGGTAT GGGAAACCGA GAGAGGTCTT CCCGGCTGGC CTCTTCTCAC
 3551 TTCCCAAACC TCCTTCCCTT CTGAAGTCCC TAACCCGGGG TGCTGACTGG
 3601 GCAAGTGGGA GGGGTGGGCA GGGCTGTGGA GACCTGCTGA GTCTGTGCCT
 3651 GGGAGGAGG GGACGTCTGT GGGCCTTGC CTGCAGGCC GAGCCTGCTT
 3701 GTTCCCTGCG GACCAGCTCG AGGCTGCCCT AGTCCCTCCTG CCAGGCCCTG
 3751 GGCGCCACG CCCGCCACGG GCTTCAGCC GCGGGCTGCT CCTGCTCCTC
 3801 GCCCGGGTG AGCCTTGTAG AGCGCCCGC CCTCCCTCCCC TCTGGGACGT
 3851 CAGACTGTGT TGTCCCTGGG CTGGTCTAC TCGGCTTGG TGTTTGGGT
 3901 TAGGTCTCCT AGAGGAGGAG GCGGTCTAT CAGCCAGGGT TTGGCTTCAG
 3951 GTCACTGGGC TGGTGTAGCT GACCGTAGCC CTCAGGTGCG CCCTTCTTGC
 4001 CCACCCCGAG GCGTGCCAGA GGCTGCAGCA CCTCCTGGGC ACTGGAGGGA
 4051 AAGAGGCAGC CTGTGCCTGC CCCCTGTGAA CTTGCTCTGT CAGGGCGGCC
 4101 ATGCCTGCAG GTGGCCTGGG ACGGCACATG TTGTTTTGGG TGGAAATGTTT
 4151 GGGAGGCTGT ACAAACAAAGA TGTCCTCAGAG GGCTCCGGAG GTGACGCTTT
 4201 TCAGGCTGGG GGCTGTGCCT GGGCTCCCTG TCCCTGGCCCT CCCTGGGCTG
 4251 CCACCTTGGGA AAGTTGGGGA GAAGCTGTTT CCAGGCTGCC GTGTCTCTCA
 4301 CAGCGTCCAG AAATGACCCC ACAGTCAGGG TACTGGGAG GGGCCCGTGG
 4351 GAGGTGGCAG TGGGGCGGAG GCAGGCCCTG TGTACACAGC GCACCACTCA
 4401 GGCTGTCTG CCATCTGGAA AGTCTTCCCC GATGCCCTGCT GCGGGCTAG
 4451 AGTGAGGCCT GTTCCACCCCC CATCAGGCTG GCCCCCAAAC TGGCCCTAAA
 4501 GCTCAGAGTT CAGTGGGTCA GGGGTCGGTC GTTCATCCAC TTAGAGGCCA
 4551 CACCTGGGCC TGAGGCCCTG TGGACAGGTC TGGGTGACTT GTATTGCCC
 4601 CAGGCGTGAT GAGAGCAGGC TTCCAGCAAG CGCTTACCTG GTGCCAGGGC
 4651 CAGTGCTACA GCTGGAGTCC TGCCATTGGT GCCTCCCAAG CCCTGGGCT
 4701 CAGCCCGTCT GATGAACAGG GTGAGTAAGT GGCAAGGCT GCCAAGCTGG
 4751 GAAGGGGAGA AGCCTGGCAC GGCCCAGGGT GGCAACCCCA GCTGCCGTCC
 4801 CTCCCGCAGG GGCTGCAGGG GCTCCGGGG GAGGACCACA AGGAATACAG
 4851 CCTGCTGTGA TGCAGAAGGT TCTGTGGTTT CCTGGGGAGG CCAGTGGGAG
 4901 AAGGGGGAGC AGGCTGCAGA GGGAGAGCGT TGAGGCAGCA GGTGGGAGG
 4951 GTGGCTGTGC CCCCCCTCACC TGGTCTCCAG CATGCCAGT GGGTCAGCCT
 5001 GAGGTCTCCCC AGCCTGGCTG GACAGGAGCA CCTCTGGGT GCTGGTTACA
 5051 GGTTCCCAAGG CCCCCTGCCA GGTAGATTGG GCTCCAGGAA GAGGGGTGCT
 5101 CAGGAAGCAC CAGTGCCTGG GTACCCCAAG GAGCATCAGA GAGAGTGGGA
 5151 GTCCCTGCCG TGAGTGGCCA GTCTATGATT CCTCTGGCTG GCGTGTGCT
 5201 TATAGCCCTG TGTCCCAAGGA GACACCTGTG CAGCAATGCC CTTTGAATT
 5251 TGTTCCCTCA TCAGTGGGGG GCAGAGATGG TGGGTCAAGGT GGGTGCTGGG
 5301 CTTCCACCCCT CTCGGGGCTT CCAGTTCTTG CATTCAAGGT AGACTTCAGT
 5351 GGGGGCAGAG GAGAGGGGTA CCTGAGATGG GTGGCTGTCA GCATACAGGG
 5401 TGCCCAAGGGC CAGGGCTCTG AAGGGAAAAA GCTGGTTTG TCCAGGTGGG
 5451 TGACCTCTCC CTGGGGACTG CCTGGCCCA GGGCAGGGGA TCCTGGGGGA
 5501 GAGTGGAGGT CTGGCCCTGC TCTGATGTTT TGCTGTTCCC AGACCTGGG
 5551 TGGGATAACT ATCTCTGCCT TTTGCCCTC CCCAGGTCAAGG CCCCCACTCTG
 5601 GCCAGGGCCA CACTGTTCC TCCTGGCAG AGGAGCCCCA GTGTCAAGGGT
 5651 TGGGGGCTG TTTCTCTGTT CTTCGTCCT CCTCATCGAG GCATGGCCAG
 5701 GCCCTTCATG TGTGGCTGCC TCTCGGGACC CCCACAGACC ACAGCCTCTC
 5751 TGTCCCTTCC TAATGCAAGG CGGAAATGGC CACAGTGGGG TGTCAGGGCA
 5801 CCGTGGACGT GGGGGTGGGG AGCTCCAGGT CACCTTTGTC TCCAGAGGGT
 5851 GGGGAGGTTG TAGCAGGAGT AGGGGCTGA ACCGCTGTGT CTATGCCCT
 5901 TCCACTGGGC TCAACCTCA ACCCAGTGTG GAAAGTGGGG CATGGGCCGC
 5951 CCACCTCCAA GGTCTACCCA GCCTCAAAGG TCCGGCTCGG GTCTGCTCCT
 6001 CCGCCTGTAG GCCGGGAAGT CACTTGGCT GCAGGGAGCA CTGCGGGTAG
 6051 GGAGGCCGAG GAATGGACCA GGGCCACAGC AGGTGCCTGT GGGGCTCAA
 6101 GGGGCCAGGC TCCCCGCAGC TCTCCTGGGG CCAGGAGGGG AGCAGGGACC
 6151 TGGCTGGGTG TCTGATGCC CTCGACAGC CAGAGCCCTT AAAGCTGCTG

FIGURE 3B

Title: ISOLATED HUMAN KINASE PROTEINS...

6201 GAGCCTTGCA GCGGGGCCTT TGCGGGGAGG GGGTAGCT GCGGTGGGTG
 6251 GCACGGGGGT CTCCCTAGGA CTGGGCAGAG GCCCTCGAGG TGGTAGGCC
 6301 GGTGGGAAAG GTAGGGATGG GAGGCGGGGG TGGGCGGGCC TCAGGTTCA
 6351 GGAGCTTCTC AGATCTGAGG CGCCCATGCC CCTCTCCCAC CTGTGGGCCT
 6401 CTCCAGCCCG AGTCCCTGAA GCAGCTCTGG AGGTAATTTC TTTTCTGGAG
 6451 GAGGCGGGAG TGAGAACCGG GAGCAGGGTG AGGGTCCCA AGTGCACATC
 6501 GGCCCGTCCG CTGCTGGGTG GTGTCCACGG GGGCAGGGCT GGGCTGGGG
 6551 AGGCCAGGGT CCTGGGCCGG CACACCCCTCC TTCCGGCTGC CTGTGTCCCT
 6601 CCCTCCAGCT GCCTGTGTCC ATCCCTCCGG CCGCCTGTGT CCCTCCCTCC
 6651 GGCCCTAAG CGCCAATCA TCTTCAGTT AGGGACCTCC GTCAGGCTCC
 6701 CTCACCCAG CACTCAGCAG GAGGCTGCCG GCCTGGGTGT CCAGGGGATG
 6751 GTGGGGGTGT CCAGCAGACA GTACAGGGGT TTGGGGGATG GTACAGGTGT
 6801 CTGGGGGATG GCGTGGGTGT CCAGCAGATG GCGCAGGGGT TTGGGGGATG
 6851 GCACAGGTGT CTGGGGGACA ATGCGGGGGT TTGGGGGATG GCGTGGGTTC
 6901 CAGGGGATGG TGCAAGGGGTG TGGGGGATGG TGTGGGTTCC AGGGGACCGT
 6951 GTGGGGGTTG GGGGATGGCG TGGGTTCCAG GGGATGGTGC AGGGGCTTGG
 7001 GGGATGGTGT GGGTTCCAGG GGACGGTGC GGGGTTGGG GATGGCGTGG
 7051 GTTCCAGGGG ACGGTGTGGG CGTTGGGGA TGCGCTGGGT TCCAGGGGAC
 7101 GGTGCCTCAT CCTCCAGTCT CTGCTCTGC CTTCATGG CCACCTCCAT
 7151 GTGACTGTGT TCAAATTCCC CACCTCGTAT AAGGACCCCTT GTCACTGCCA
 7201 TTAAGGACCC CCTACTCCAG GGTGCCCTCA TCTTAACCTCA TTATATCTGC
 7251 AAAGACCCCTA TTTCTAGAAA ATTGCACTG ACAGGTACTG GGAGTCAGGA
 7301 CTTGAACCTG TCTTTGTGG GGACACATT CACCCATAAT AGATGGTCAC
 7351 CCGCTCAGCT GGCTGCTGTG ATTTGGGGG GCTGGACGAG CAGGCCTTCT
 7401 GTCTAGAAA TCAAACCTTT CTTGTATAAT GGAATAAAC TAATTAAAAT
 7451 GCACACAAAG ATCTCGTTCA CATTAGCAAA AAGAACTCTC TCCAGATATC
 7501 TAGGAGAAAA CCCAGGAAA CACGTGTGAG CTCTTACGG GGAAGACGGG
 7551 AAGGCCTGAG AGACGTGTGT GCGTGGAGAG GGTGTCGGGT CCACAGAGGG
 7601 GAAGACCCAG TGCGTGTGCA CGTTGGCCCC ATGAATCCGC AGCTTCATGC
 7651 AGTGGTAGGT CAGTTCATG GTGGCAAGAT TCACCTTCAG ACGCCACAAG
 7701 GTCCTGGGA AGAAGAGGTC CTGCTCCCG ACAAGGGCGG GAAGCAGTCC
 7751 CAGGAGCCAC CAGAGGCCTT GTCTGCTGC TGACTGGCAG AAATGGCCAG
 7801 GTTGGCCACG CTCGACTCA ACCAGGCTCG CCCCAGGGCT GGGTGGGAGT
 7851 CAGTGTCCCT GAGCAGTGTAG CCCTGAGCAG CACTGTGGGT CTCAAAGCAT
 7901 GGAAGGAGTG GGTGTGGAG AGGCAAGCCA GCCAGCCAC GCCTGGGAGC
 7951 CCACCCAGGG GACAGCCACA GGTAGCTGCA AATAATCTTG TCCGGGTGGA
 8001 GACCCAGGCA TTCCCACATG GCCACGGGGG AGAGTGGGGG TTGGGAGGCC
 8051 ATGGTGAGAG GGAGGGACAC GTGAGGATCA TGTGGCAGG ACCCAACAC
 8101 CACAAGGGTG GGGTGGCTG AGGCATGAAA CTGGATCTCC CTAGAGTGA
 8151 ATGTAAGCTC CAGCACGCTG GCACCACTGA CGACACAGGA GCCATCAAAG
 8201 TCCAGAAGGG GCCCCGCTGG GCACGCCCA CTCTTCGCC ATGGCTGGTG
 8251 CTGGCAGGG CGCGGGGCT GCAGTCTGGG TGCAAGGCTC AGAGTCATTT
 8301 CTCTGTGGAT AGGGAGGGCA CGGGTGTGCG TTCGCTTCGA GAACCATTCC
 8351 CAAAGTCAGA CGCAGCCTC TGCAACCAACC ATCGGGGCC AGTGGCCGCC
 8401 CCCAGAGCCT CAGGGACCCCT GTCTTTGAG CCCACGCCTA AACCCACATG
 8451 GGAATGATTT GGAGGCGTGG GTGAGTTGGA TGGAAGGGGGG ATTGGGAGGG
 8501 GCAAGGGGGG GATCCAGAAT GAAATCCAGA AGCGCAGAAG GAAGGCTGTG
 8551 AGGAGCAGTG GGCGCCTCC TGCAGGGCTC CCGGAGCCCG TACTTGTCCA
 8601 GGCTGCCTGG TGAGACCTTG GCTTCTGGTG TCCTTGGCAG GTGCCAGCCT
 8651 CCCCCGCTGA CCCCCATCAC GAGTCAGCAG CTTACCCAC CGACCACGTC
 8701 CTTCTGCATT GACTGCCCTC TGTCTGCTC TG GCCAGGGCC TGTGTTACCA
 8751 CTAGTTCTGT CCAGCCCCCTC CCTGTGAGGC CAGCTCCAGC CCCAGCGCAT
 8801 GGTGACCATC CGTTACCCA TGGGCAGGAT GCACCTCTCT CAGTGGCTGG
 8851 CGAGGCGCAG CTCGGTGCAG GCGCCACGGG GTGGGGCTGT GATCGCCTGT
 8901 GGCCTCCCTG CAGGGCTGTG ACTCCCTGAC GCAGATCCAG TGCGGCCAGC
 8951 TGCAGAGCCG CAGGGCCAG ATTCAACAGC AGATTGACAA GGAGCTGCAG
 9001 ATGCGGACGG GCGCTGAGAA CCTCTACAGG TCAGTGTCTTG AGACTGCCCG
 9051 GCCCGGGAG CAGGGCCAC CTGGGTGAGG GGGGCAGGAC AGCCACGCAG
 9101 GCAGATGTCT GCCCCATGGC CGGGTCACAG AGACAGGTGC ATGAGCAGCT
 9151 GGGTCTGGT GGGCACGTAG TACACGTGAT GCTCAGCCAT GACCCTCAC
 9201 GACCTGCCTC CGTGGGCCTC TGTGCTGGC TGAGGTTGCC AGGAAACCAG
 9251 TGTCCCTGCC GGGTGTGCAG CTTGGGAAGC CCCAACAGTG CACGTGGGG

FIGURE 3C

Title: ISOLATED HUMAN KINASE PROTEINS...

9301 CTTCTCAGAA GAGGCATGGT TGAGGCTGAG CTGTGGCAGG TGACGGCGCG
 9351 TCCCAAGGTT GGGGACCTGG GAGGGGGTGG AAGACCTGGG CTGCCTCTTC
 9401 CTTAGAGCAC ACCGCCTGTG TGCCACACAT GTGCGTGTGA GTGCCCTCTG
 9451 GTCCCCCTTAG CACCTGCTAC CTCGCTGCC CCATCCTGGC CTTCCCTGGG
 9501 GACCTCCGGT CCCTTGCCA GGCCCTGATG CAGGCACAGA GAGGTGTGTG
 9551 GCTCTCACCC ACCATCCAAG GAGTGATGTT TGAGTGCTGT CGAGGGCTGT
 9601 ATGAGCCCCA AAGAAAGCCG TGGTGTGAG GGAGGTGCC CCAGGCCAGA
 9651 GTCGAACAT GCAGGTGCTG GGGTGGGGT GATGAACCTGT AGGGGGCATC
 9701 ACCTGTGAGC CCCCGGATCC CACTGCTGCC CCTGCCAC CCATGGGGG
 9751 CAGACCCCTGT CAGCGACGTC CTCTGAGGG TGGGCTTGGG GCTTGACAG
 9801 GTCAGCTGGC AGGACGGCTG CAGTGGGCAC GGGGCCTTTG GCTCTGCCTT
 9851 GGGGCTGGC TTTCAACTGC CGCGGCCCTCC CTCAGAGCCA CCAGCAACAA
 9901 CCGGGTGGAGA GAGACGGTCTG CCCTGGAGCT GAGCTACGTC AACTCCAACC
 9951 TGCAGCTGCT GAAGGGAGGAG CTGGAGGAGC TCAGCGGTGG CGTGGACCC
 10001 GGCGGCATG GGAGGTGCGG GTGGGGCCG GGACAGCACG TGCCTGTATG
 10051 TGTGTGCACG TGTGCGTGTG TGTGTCATG TGTGTCACG CATGTGTGTC
 10101 TCTGTGTGTA TATGTGTGCA TTGTCATGTG TGTGCGTGTG GTGCATGTGT
 10151 GTGCATGCAT GTCTGTGCC CTCAGCTGTG TGCATGTGTG CTGTGCATCT
 10201 CTGTCATGTG TCGATGCTC TGTGTCATGTG ATGTGTGCA TGTGTCATGTG
 10251 CATGTGTGTC TGCATGCTC TGTGTCATGTG TGTGTCATGTG TGTCTGCATG
 10301 TGTCTGTGTC TGCATCTCTG TGCATGCTC TGTGTCATGTG TGTGTCACG
 10351 CGTGTGCATG TCTGCGTGTG TGTGGGTGTG TGTGTCATGTG TGTGTCATGTG
 10401 TGTATGCACG TGTGTCATGTG TGTGTCATGTG TGTGTCATGTG TGTGTCATGTG
 10451 TGCACGTGTC TGCATATATG TGTGTCATGTG CGCATGTGTC TCTGCATGTG
 10501 TATGCACGCA TGTGTTGTC TGTGTCATGTG CGCGTGCATG TGTGTCATGTG
 10551 TGTGTCATGTG TGTGTCATGTG TGGGGCGTT TAGGACGGTG GGGGGTGGTG
 10601 CACAGGTGCA AGGATGCCCG CCAGGACACA GGCGCACGTG CACACCCATG
 10651 AGGGAGGGAG GCACCCCTGTG CCACAGAGCC CTAGGAGTGG ACCCCGGGCT
 10701 GCCGTGGCA GCAGGGTTTG GCCTTACAGT CTGAAGTCGA TGCTTCTGGT
 10751 TACAGCGAAG CTGTCACTGT CCCCATGATC CCCCTGGGCC TGAAGGAGAC
 10801 CAAGGAGCTG GACTGGTCTA CACCGCTGAA GGTAGGTACT GGCCTCCAAG
 10851 CTCTGAGATA CACGGCCCTG CCCTGGGACC AAGGGGGTCT TGGAGGCTTT
 10901 CTGGTCCAGC TGTCTGGTTG AACAGATAGG GAAACTGAGG CCCAGAGGGA
 10951 GGGAGGCTTA AAAGGGACGC AAGGGACCTG GCAGAAATGG CCACAGGGAC
 11001 CCAGGCTCTG CTGCGTTCAG GGCCCCGCTG GTGCCTGCAC CCCAGGCCGG
 11051 GGCTGATCCC ATAGAGTGGG TGTGAACATG TGCCTACCC TCGGATGGG
 11101 AATGCCCTAG GAGGATGGGG CCTGGAAGGCC CCAGCCGGAG CACAGGGTAC
 11151 AGGCTCGCCC ATGGAGGGCA CCACTGGCTT GGGGCCACAC ACCCAGCACT
 11201 GGCTCACGAG GGTCTGGGG AGAGCTAGAA CAGACTGGCA CTGCCTGGCA
 11251 GGGCCCCACG GGAGGCACTG ACTGTTCTC GTGTCGGAGT CACTGAGTGG
 11301 CAGATGGCAC CTGCCTCCCG GCCACGGGAA TGAATAAGGA AACGCACGTA
 11351 AAAGTAGCGC TGAGTCTCCA GGCCCCGCTT CTGTGATGGG GTGGGGAAAC
 11401 CCCAGGGCCA CAGGGGCTCC GACCCCATC AACCCACCAAG GCCCCCTCCAT
 11451 ACACATTGGC CCCCAGCCCT TCTCTGGGC TTCCACTGAG GGGCCCAAGGG
 11501 CCCCCACGCT GCATGGCAC CAGCCTGCTC TGCGGCACAG ACCCTCCCTC
 11551 CACCATGAGT CTTTCTCCAA GGTGGTTGG GAGACCTCAG GGAAGGAGGC
 11601 CAGGCACAGG GGTACTGTGG ATGCCAACAC CTGCCCCCCTA TCAGGAGCTG
 11651 ATCTCAGTGC ACTTTGGAGA GGACGGCGCC TCCTACGAGG CAGAAATCAG
 11701 GGAGCTGGAG GCCCCTGCC AGGTGTGTGG TTCCCCCGCC CACCCACCC
 11751 CCTGCAGCCC TGGGAGACAC ATGCAGAGGC TGAAGCTGAA GTCAGGAACA
 11801 GACAGAGGAG CTCAGCGTAG ACATCTCGAG GACGTGGGGA GACGGGCGCA
 11851 CCAGGGGCCCT TGTGTCATGTG GACCCAGCCA GGGGGCGTGG AGGGGCTCCC
 11901 AGGTGGCTCC GGTGCCGCAT GCTGTCATGTG TTCCGGAGTC ACGGCTGCC
 11951 AGGGCCCCAC TGGCTTGTGG TCCCCCGCC CCATGGTGCT GGTGCCCATG
 12001 GGACTTCCCA GGGCAGTGTG TGTGAGTGGG GTGGGGCCAGG GCGGTGGGGC
 12051 CCAGTGGCTC CTGCCCTGCA GGCCATGCGG ACCCCAGCC GGAATGAGTC
 12101 GGGCCTGGAG CTGCTCACAG CCTATTACAA CCAGCTGTGC TTCCCTGGATG
 12151 CGCGCTTCCCT CACCCCTGCC AGGAGGCTCG GGCCTCTTCTT CCACTGGTAG
 12201 GGGCTCTGCC GGCAGGAGGCA CCCTGGGGAG GGGAGGCCA GCTGCAGGAA
 12251 CCGTGGGAAC TCCACCCAGC CTGACCAAC ACTGCAGGTA CGACTCGCTT
 12301 ACTGGGGTCC CGGCCAGCA GCGTGCCTG GCCTTCGAGA AGGGCAGCGT
 12351 TCTCTTCAAC ATCGGTGCCCT TCCACACGCA GATTGGGGCG CGCCAGGACC

FIGURE 3D

Title: ISOLATED HUMAN KINASE PROTEINS...

12401 GCTCCTGCAC CGAGGGTGC CGCCGCGCTA TGGAGGCCTT CCAGAGGCC
 12451 GCTGGTGAGG CGGGCCCGGG CGCGGGTGG GCACGGCGC GTGCCAGGGT
 12501 GTTGCAGAGC CCCTTTGCA GGGCAGGAGC TGAGGAGTGG TTAGGACATC
 12551 AGTCCTCAG GTAGGGGGAG TGAGCACATC AGGTCCATAT GTGTCCCAGG
 12601 AGCATCCCTA GCTGGCCGCC CTGAGTGTG CATGGGGCAG AGATGGGCAG
 12651 GTACAGGGCC CTGCGTGTGAGC ACCCCCCT CCCCTCGCAG GGGCCTTCAG
 12701 CCTCCTGAGG GAGAACCTCT CCCATGCGCC GAGCCCAGAC ATGAGCGCTG
 12751 CGTCCTCTG CGCACTGGAG CAGCTCATGA TGGCCAGGC CCAGGAATGT
 12801 GTGTTTGAGG GCCTCTCACCC ACCTGCCTCC ATGGCCCCCCC AAGACTGCCT
 12851 GGCCAGCTG CGCCTGGCGC AGGAGGCCGC CCAGGTGAGC TCAGGGCACCC
 12901 GTGTCAGGAT GCAGGGGGTG GGGCCAGCT GGGGTCAAGAG CCCAGGTCCA
 12951 GGCATGCGTG AGCTCTCCCA CCTCCTTCCT TGTGTGTCAG CCCCAGGCCA
 13001 GCTGGTGCC TGCTCCCTGG GGGGGCTGGT CAGGAACCTG GGGACCCGAG
 13051 CCTCTGCCCTC CAGGGGATGG CACAAAGCAG CAGGAACCTG GGTGCCAGGG
 13101 AGGCTGCTGG GATGGTGGTC GGAGCAGGTG GAGGCTGGGT AGGGAGAAC
 13151 AGGCACCACCC TGGAGAGTGG GAGGCCCTCG CGTGCCTGCC ACATCCACCG
 13201 GCAGGTGGCA GCCGAGTACA GGCTAGTGC CCGGACCATG GCCCAGCCAC
 13251 CGGTCCACGA CTACGTCCTC GTCTCCGGA CTGCCCCGGT GCATGTCAAG
 13301 GCCGAGTACT TCCGCTCCCT GGGCCACTAC CACGTAGCCA TGGCCCTCTG
 13351 CGACGGCTCC CGTGAGTGC CACCGCACTT GCCCATGGTA CTGCCAAGGC
 13401 CCCCCCGCAGC AGGGCTCACCA GCCTCTCTGT CCCCCCAGCAG CGACCGAGGG
 13451 AGAGCTCCCC ACGCACGAGC AGGTCTTCCT GCAGCCCCCCC ACCTCCTCTA
 13501 AGCCCCGAGG CCCTGTGCTG CCGCAGGAGC TGAGGAGGCG CAGGCAGCTT
 13551 GGTAAAGCGC CCATGGGTGG AGTGCCTGG GGCCTCAGATG GTCACCAACG
 13601 GTGGCAGGGT GTCCCCCACC ACCCTCATGC TGTTGCCAC CTGCTGTC
 13651 CGTGTGACG AGTTGGGCCA CCTACCTATC CCTGGATGGC CTGTGCCGT
 13701 TGGGTGACGG CCCAGCGCAG GGGCCCCAGG AGTGCTGGGC AGCCTCTGAG
 13751 CAGGTGGGAG ACCACTGGGA GCAGCTCATC CCTGGCCCCCT GCTTGCACG
 13801 TGGCAGAGCC CTCCCTGCACA GCCAGCTCCT CACCCCCCGTG GCGCGCACCC
 13851 CCAACGAAAG TGGCTGTGAT GAGCCCCACA GCCCTGGCGT TGCCCACCTC
 13901 TTCTGCCACG TCCCAGGGCC CACGGGCCA CATGGTGTG TGACATCCAG
 13951 TGCCCCCGCT GCAGGCAAGG CACACCTGAA GCGTGCCTAC TGGGGGCAGG
 14001 AGGAGGCAC GCAGCTGCAC GCCCTGTGCC GCGTCCTGCC CGAGGTGGAC
 14051 CTGCTTCGGG CTGTGATCTC CCAGACGCTG CAGCGCTCAC TGGCCAAGTA
 14101 TGCGGAGCTC GACCGTGAGG ATGACTCTG TGAGGCTGCC GAGGCCCCGG
 14151 ACATCCAGCG TGAGCAGCCA GGGCCCTGTCT GGGTGGCTGC ATCCCTGCC
 14201 AGGGTGGGGG CTTCTGCTCT GGAGAAAGGG AGGCTGATTG CATTAAAGAT
 14251 GCAGTCACCA CGATGAATTA AACACCGAGTA GCACTTCCA GGCCACGATC
 14301 ACAGGGACCC ACAGAGCTGC TGGGCCCTTC AGGGGCCCTGG GGGATGACCA
 14351 CGCTCCCTCAG CACCTCCCTC CCTGCACTGG CCTCCTACCC TGAGGGGAAG
 14401 CCCACAGACC CAGGACAGGC ATGGCTGGGA CTTCAAGGGAG GGATTTGGG
 14451 AGCCACTTGG GGCAGAGGGG GCTGTGTGTT CAGGGCACAC CTGGGGCAGC
 14501 TCCTCCCACTT ATTGCAAGAGT GGCCAGGCC CTGAGGTCAAGA AGCGGGGCC
 14551 GTGTGCACTC AGGGTCATGC CCTGCCTCCCT GGAAAATCCC CGAGGCAGGT
 14601 CTCCACAGTC TCCCAGCTTA GCTCTGCTCT TACACCCCTCT CAGCTAAGAC
 14651 CCACCAAGG CGAGGCCA GGATGCCACG CCTGTCCCAG GGGAAAGGGC
 14701 CTGACATCTT CCATCGGCTG GTGAGCACAC CCGTCCCCAG GCACCGCCCA
 14751 GCATGGCAG CTTGGGCTGT GTGGCTCTGA CCAGCACATG GCCTCAGACA
 14801 GGCCATTGAT GGTGGTCCAG CCCTCCCCAC CCACCTTGTG GAACCCCACG
 14851 GTGTCCCTCG GTGCACAGGT TGGATGGATG TGCTAGTCAG GTGGGGTCTC
 14901 CTCAGTGTGTG GCCCAGCTG GGCCTCTGAC CTCTGAGCCCC CTGCCAGGG
 14951 CCCCTGTCTG TGTTCAGC CAAGAACCGG TGGCGGCTGG TGGGGCCCGT
 15001 CCACCTGACC CGAGGAGAGG GCGGCTTGG CCTCACGCTT CGGGGAGACT
 15051 CGCCTGTCCCT CATCGCTGCC GTCATTCCAG GGAGCCAGGC CGCGGTAAGG
 15101 GCCCCGCCGG CCCCCCTGAGG CTGAGTCCTT GGTGCCAGCC AGGGTGTCT
 15151 GTCCCCACCT CACCGTCCAA GTCTCCCCAC AGGCGGCTGG CCTGAAGGGAG
 15201 GGCGACTACA TTGTGTCACT GAATGGCAGG CCATGCAAGGT GGTGGAGAC
 15251 CGCGGAGGTG GTGACGGAGC TGAAGGCTGC GGGAGAGGGCG GGCGCCAGCC
 15301 TGCAAGGTGGT GTCGCTGCTG CCCAGCTCTA GACTGCCAG CTTGGTGAGC
 15351 CCCTGGGGCC CGAGAGGGGC GGTCCCCAGC TTGCTGTAC CACCCCTGCC
 15401 CTGGGCCTGC CTTGGATGCT TGAGCAACAT TGAGGAAGGGG AGGTGGGGCT
 15451 GCAGGTAACC CTCCCTGGGC CGCCTCCTGG GCAGGGGCCA CCTGTGCTGT

FIGURE 3E

Title: ISOLATED HUMAN KINASE PROTEINS...

15501 GGCTCCATC TGGCAGCTCT TGCCCTGACC CCGAGGATGC TGCAGCCCAC
 15551 CCCTCACTGG GCCTCTGTAT CCTCAGACTG GAGGCTTCTG GGCCAGGCGC
 15601 TCCATCCCAG AGGTTTCTC TACCCAGCAT GGCTGACCCA GGGTTGGGTG
 15651 AAACCCATGG GCCCCTGCTA TGTGGCACC CTGATGGGAG CCCCCAAACA
 15701 AGCCCCGAC GTGCCAGCCC CTCCCAGGTG GTTCTCACCC CTCCCAGACT
 15751 GGCTGCAGGT GGGGACAGGC CAGCAGTGGC TGACCACAGT CTGTCTCTGT
 15801 CCCTGCTGCA GGGGGACCGC CGGCCCCGTCC TGCTGGGCC CAGGGGGCTT
 15851 CTAAGGAGCC AGAGGGAGCA TGGTGCAAG ACCCCGGCAT CCACGTGGC
 15901 CAGTCCCCGG CCCCTCCTCA ACTGGAGCCG AAAGGCCAG CAGGGCAAGA
 15951 CTGGAGGCTG CCCCCAGCCC TGTGCCAG TGAAAGCCAGC TCCGCCCTCA
 16001 TCCTTGAAGC ACCCAGGGTG GCCGTGAGGG CCAGGATCCC TGCACGCC
 16051 AGCCCTGGCT CCAGCTGGCA GCAAGCACCG AGCATGCCCT CCCCCACCCAG
 16101 AGGACCTCCG GGCAATGCCCT GTCCCCCCTC ATGCTGGAGG CTGCCCTGGG
 16151 CACCTGCCCTG CCCATTAAAG ACTGGTCAGA CCTGTCAGAG CCCAGTGTAG
 16201 GGAGCTGTGG CCTCTTCACC CACACACAGA AGGATGCCAG TCCCTCTGTC
 16251 GGTCTGAGGT CAGCTCTCTG GGGCTGCCCT ACCCTGAGGG CTCCTTACAG
 16301 GGTGCTCTC ACAGCCATCC CATCTGTACC CCCGGGCTCT GTCCACCC
 16351 CTGCTGCCCT GGGCACAGAC CCTGAGGTCT CAGTCCTGCC TCCAGCCAAG
 16401 TTTCTGCCCTG GTGCCAGTG ATTCTGCTG GGCACCCCTT CGCTCACTGC
 16451 CCCTCCACCA TGCAGCAGCC AGACACACCC ACAGCACCCG AAGACCTCTA
 16501 GGCGGGTCC CAGACATGGC CTTCCCCCAA AATACTTCCT GCTGTCCTGT
 16551 CTGTGCACAG AGCAAGGGAC TCCCCACCTC TGCGCCCTGT GCTGGTCATC
 16601 ATGGGCTCTG TGCTGGTCAA CCCAGCAAGT GTCCCCGTTTG CCCAGGAGTC
 16651 CCTGGTGTGCG TGGCCAGGT CTCATGGTGG CCCTAAGCCT GCCAGCC
 16701 CTGCCCGCCT TGCTGTCTG CTCTGAGCAT GGGTGCCACC CTCCAGCTCC
 16751 TGGCGTGTC ACTTCTCTCT GAGCCTGGGG CCTGCATGGG CCCCCAGCCC
 16801 TCCCCAGCCT GCTTGGGCCG CTCCCTGCTGG CCTCCACAGG CCGTGAGCTG
 16851 TCAGTGTCTC AAGCAGGGGA AGTGAGGGCT GCCTCCAGGC CTCCGTGTAC
 16901 TGGGTGGACA ATGGCCCCCA AAGGCCGTG GCAAGAACAC CACCTCCAGG
 16951 ACCCTACAG CAGTGGGCTC AGGACTTGGG CACCAAGAGG AGAGGGTGGG
 17001 AAGGGCTGCA GAGTCAGGGC TGCAACCAAG AGGAGCCACG GAGCCGGAGC
 17051 CGGAGCGGAG GCCCCCACCG AGGGCCCCAG GGCCTGGCAG GTTCCGGAAG
 17101 AGACAGGGCC AGCGGGAGTC ATTCCCTGCA GCCACTAGGG GGCAGCCGCC
 17151 ACCCGCTCAG CAGCCCTGGG AGCGGCCAGC GGCAGGTGCG CCTTGGGAGG
 17201 GCTGAGGCAA AGACCCCGGG TAGAAAGGC GCCCCCAGCT CTGCGAGACC
 17251 CCTCCCTCT TGTCCAGTCC CTTCCGAGGG TCCGCAGGTG AGAGCAGCCT
 17301 GCCCTGCATC CCAGGCTCTG GTTCCAGGGT CCAGGGCCCT GCGCTGCCAC
 17351 CTCCCTCGTG CTTCAGCCAA GAAAATGGGG GTGCAAGTAG GGTGTTGGG
 17401 GTCCCTAGAGA CGCAGGGGCC GCGGCCGAT CTTCCTGGC AGGAGGGCAG
 17451 GGCTCCCCAA CCTGCCTGAG CGGGGGTGGG GTTCCAGGTG CCCCCACTTGC
 17501 CCTTGTTGGGA AAATCCCTGT CTCAGCAGAA TGGGCCAAGG TCACGCAGGT
 17551 CTCCCCAGCA CGTGTAAATT TGGTTAATAA AACTGTGGAT CAAGGAGGCC
 17601 AGTAGGCACT AACTGGGGAT GACAGGGTGG CAGCCCTGTC TGGGAAGTGC
 17651 AGGGACTCCC CACCTCTGT GGCCCTGCGA GACCCAAGCT GGGGACAGAG
 17701 CTGCCACCTG CCTCTGCGAT GTGGGCCGC AGGCCACCAT AGCCTGGGG
 17751 AGGGGGCTTT TGCCCCAGAGA GCACGCCCT CCCCACCGCA GACCCCTGGG
 17801 GTGCCCTCAA CCGTCCCCAC CCCTGCCAC ACATGCCCTC CCCCTGGCTG
 17851 CCACCAAGCC TGGGCCCTGTG CTCCCTGCCCTG CCCAGGCAT
 17901 CTCCTCCCCCT GCTGCCCCCCC CCCCCCCCCGT CGTGTCCCTC TGCCACAGAG
 17951 GGGGGGCTC ACAGCTGAAG CCACACGTGG CTGGGACCTG GCTCCCGTCA
 18001 CCGCCTCCGT CCTGTGAAGT GGAGGAAGCC TGTTGCACAG GGGTGTGTG
 18051 GCGATGTGGG GGGCCCTGAG GTCCCTGCTGC CAGCCAGGGG GAGGGGGCG
 18101 GAGGTCTCTGG GATCTGGGGT CCAGAGTTCT AGTCAAGGCA GGGCTGGGCA
 18151 GGAGGGGGGT CCCCCCTCCCC ACCTTCCACT TGGGCTGCT CTCCAGAAGA
 18201 GAAAGCGGAT GCCTACCAGC CCAGCCCCCTC AGACTTGGAC CATGCCCTC
 18251 CGGCATCTGT GGGAGTCTGT CCAGACAGCC CCTGGGCTGC GGGAAAGGGAC
 18301 CGCGCCCCCAT CCCATCCTCA TCCCTGCGAT AGCTGGTGGC TGCCCTGCC
 18351 GCGCAGGGC CTGCTGAACA GGGGACTGCC CTGTCAGGCC CACCCACGGG
 18401 ACTCCAAGTC CACACAGGC GAAGAGTCGG CAGCGGTGGG CAGAGTGGG
 18451 GGGCATCACC ATGGCTCTC AGGGACTGGT CAAGGGTGTG ATGCCTGCC
 18501 TGGCAGGACC TGCAGTTCA CCCCCGGGCC CAGCTGTGGC CTGTGCCCG
 18551 CCAGAGGGCA GTGCAGCCCC TGGGGCCAGC ACACAGGAGG CGGCAGCTCA

FIGURE 3F

Docket No.: CL001099 CIP DIV2

Serial No.: To be assigned

Inventors: Douglas RUSCH et al.

Title: ISOLATED HUMAN KINASE PROTEINS...

18601 GGGTCCTGTC CCATCTGCC AGGCTAGGGA GCAAAGCAGG ATCAGGGCGA
18651 GGCTGCGAGG CTGGGGGAAG GCAGGGCTGG CCGCTGGGA GCGCTCGGTC
18701 CGCAGGCTGT CGGGTGAGAG CCACTGGGTG AGGCTTCCCG GGGGGCACAG
18751 CTGCCCGAG GGGCCGGCTC AAGGCTGTCC CTGCAGCAGC ACGTGTGGT
18801 GCTTGCCTGC CCCCCCCGCA GGCCACACC GCGGCCTCTG TGGAGCCCGT
18851 TCTCTTCCCT TGAAGTCCTG CTTGCGCACT CCTGGCGTT TCTGGCTAGC
18901 ACCTTTTGG CTTTAGGGA CGGGTTAGTG TCCCTTCCTC AGATGGCCCG
18951 GCCTGGACAC ACCCCATGCA TGGGCCTTAG CCCCCACTTT CTGGGCCAGC
19001 CTTATCACTT TGGGCAGTGT GTCAC (SEQ ID NO:3)

FEATURES:

Start: 3000
Exon: 3000-3059
Intron: 3060-7495
Exon: 7496-7654
Intron: 7655-8913
Exon: 8914-9029
Intron: 9030-9885
Exon: 9886-10014
Intron: 10015-10755
Exon: 10756-10831
Intron: 10832-11644
Exon: 11645-11722
Intron: 11723-12071
Exon: 12072-12196
Intron: 12197-12287
Exon: 12288-12454
Intron: 12455-12690
Exon: 12691-12884
Intron: 12885-13204
Exon: 13205-13361
Intron: 13362-13437
Exon: 13438-13551
Intron: 13552-13964
Exon: 13965-14159
Intron: 14160-14643
Exon: 14644-14720
Intron: 14721-14947
Exon: 14948-15094
Intron: 15095-15182
Exon: 15183-15344
Intron: 15345-15811
Exon: 15812-16024
Stop: 16025

CHROMOSOME MAP POSITION:

Chromosome 8

FIGURE 3G